



## PATENT ABSTRACTS OF JAPAN

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**H01L 21/8228****H01L 27/082****H01L 21/8222****H01L 27/06****H01L 21/8249****H01L 21/331****H01L 29/73**(21) Application number: **11069916**(71) Applicant: **SONY CORP**(22) Date of filing: **16.03.99**(72) Inventor: **KURANOUCI ATSUSHI**(54) **SEMICONDUCTOR DEVICE AND MANUFACTURE THEREOF**

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(57) Abstract:

**PROBLEM TO BE SOLVED:** To provide a semiconductor device together with its manufacturing method wherein the collector resistance is reduced with no raised impurity concentration in the collector region.

**SOLUTION:** A first conductivity collector region 5 formed on the surface layer of semiconductor substrates 1 and 2, second conductivity base regions 7 and 8 formed at a part of a collector region surface layer, first conductivity emitter region 10 formed at a part of a base region surface layer, and first conductivity collector tap region 9 which is formed on a collector region surface layer with a specified gap from the base region, are provided. Here, the collector tap region is formed lower than the emitter region surface and base region surface.

